

TRAIL & Landscape

A PUBLICATION CONCERNED WITH
NATURAL HISTORY AND CONSERVATION



TRAIL & LANDSCAPE

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THE OTTAWA FIELD-NATURALISTS' CLUB

- Founded 1879 -

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Objects of the Club: To foster an acquaintance with and love of nature and to encourage and publish original research in natural history.

Club Publications: THE CANADIAN FIELD-NATURALIST, official journal of the Club, devoted to the publishing of research in natural history. TRAIL & LANDSCAPE, a non-technical publication of general interest to local naturalists.

Field Trips, Lectures and other natural history activities are arranged for local members. See inside back cover.

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TRAIL & *Landscape*

Vol 2 No 2

Published by

THE OTTAWA FIELD-NATURALISTS' CLUB

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18 Briarcliffe Drive

R R 1, Ottawa, Canada

Think of It This Way...	- - - - -	30
The Drums of Spring	- - - - -	32
S. D. MacDonald		
Natural History Brochures	- - - - -	36
Sweet Time in the Suburb	- - - - -	37
D. Duncan		
Explorer's Corner: Carp "Mountain"	- - - - -	40
V. E. F. Solman		
Bird Migration Chart	- - - - -	42
G. R. Hanes		
Letters to the Editor	- - - - -	44
Listen to the Plants Grow!	- - - - -	48
A. Hanes		
Toads, Treefrogs and Frogs of Ottawa	- - - - -	50
F. R. Cook		
Coming Events	- - - - -	inside back cover



THINK *of it* THIS *way...*

...."To want to save vanishing species and wild landscape is worthy enough, but why stop at these? The need is to preserve wild things everywhere. A degree of wildness preserved in a city, even if only some medicated elms with an oriole in them, is no small accomplishment and may have no small value as part of human environment. We need a degree of wildness everywhere because it softens and diversifies man-dominated surroundings. Man has a long history of plundering the landscape, destroying its complexity while creating a simplicity to suit his foggy understanding of ecology and his clumsy physical capacity to make the earth produce useful products. But this simplicity is dangerous. The land can rebel at it, being incapable of sustaining production under monotonous treatment, and the human mind can rebel at it, being stifled by the monotonous result. Wild elements in the landscape can build fertility into the land, and can build stability into the human mind. For practical reasons if not aesthetic ones, landscapes need wild elements. The issue is not one of saving wildness for its own sake; it is one of saving wildness because many people want it, because many people need it, because it can benefit the health and happiness and wealth of people.

from "The Preservation of Wilderness"
by R. Y. Edwards
in CANADIAN AUDUBON Jan-Feb 1967
.. published by the Canadian
.... Audubon Society, Toronto

"Our aim should not be expressed as one to preserve nature. This is a confused idea. Man's capacity to destroy things in nature is very great, but it is no less natural than a beaver's capacity to destroy life with its teeth or with its dams. Both use evolved capacities. The difference is only one of degree.

"The need is not for man, an unnatural thing, to stop his unnatural destruction. The need is for man, a part of nature, to learn to live less destructively with the rest of nature, for he seems bent on destroying his habitat, and this would mean the destruction of man. While he must take his living from his surroundings, as must all living things, in so doing he is also capable of using his natural intelligence to avoid unnecessarily destructive activity caused not by need, but by ignorance, which is bad enough, or by indifference, which is worse.

"It is time for a new approach, for there is little time left. We do not need preservation, nor conservation, nor multiple use, nor any other neatly twistable idea on how to use the landscape. All we need is understanding of the landscape, and the wit to use it to the best advantage of the landscape. Man is part of that landscape and as goes the landscape, so goes man...."

THE DRUMS OF SPRING

S. D. MacDonald

The vast expanse of winter snow which now covers the countryside and lies deep in the woods is showing the first signs of spring. The warmth of sunny days is replacing the fluffy snow surface with a thin, porcelain-like glaze, and in the sunny sheltered spots the edges of the drifts are melting.

All of us know these signs of spring and feel the need to walk in the woods in the soft, warm air. The breezes of March always seem fresher laden with the scent of melting snow, and the wet woods. In the sunny afternoon the hemlocks have a new sheen as they stir in the breeze, and on the beech trees the bleached golden leaves glow faintly.

Suddenly from somewhere in the woods comes a muffled throbbing sound like the beating of a great heart, more sensed than heard. It is soon repeated, at first slowly, then with increasing speed, until it becomes a muffled roar of sound which abruptly ceases. It is the drumming of the Ruffed Grouse.

Many more people have heard the grouse drumming than have seen it; usually only a glimpse of the activity is to be had before the drummer whirrs away through the trees. It is a thrilling experience to move stealthily (and silently) through the woods advancing toward the sound only when the grouse is drumming. With luck you can get close enough to watch how the sound is produced.

If you want to be less sporting about it, you can walk with reasonable care towards the source of the sound and try to see the drummer before he disappears. Once you know the general area the rest is easy.

In spring each male Ruffed Grouse, Bonasa umbellus, selects a territory for his needs and advertises his presence to other Ruffed Grouse by drumming. The drum site is usually a fallen log, or it may be a root or hummock. Each territory has several drumming logs, but one is a favorite and the grouse spends most of his time during March and April drumming and resting on it. The favorite spot is always marked by a large accumulation of whitish fecal droppings, and sometimes a few feathers. Find this sign and you have located the drummer's stage.

Once the site has been discovered you can set up an observation blind within 20-25 feet of the log from which you can watch or photograph. If this is too distant, you can move it closer each day when you are sure the bird has accepted it. Most Ruffed Grouse ignore the blind, but in case he may be somewhat alarmed, and then drum on a nearby substitute log you should lay a small pole lengthwise along all other nearby logs to discourage him. With no suitable platform to be found elsewhere his urge to advertise will force him to use the site in front of your blind. Always locate your blind before daylight. Everything is now in readiness at the blind for tomorrow morning. You will need plenty of heavy clothing, a low stool to sit on, a thermos of hot coffee - and your alarm clock set for at least three o'clock in the morning.

On the way to the blind you realize the air is clear and surprisingly fresh, and only the brightest stars are still shining. The dead leaves, crisp with frost, crackle loudly underfoot. Once inside the blind you set up your camera, and try to find a comfortable position on the low stool, and wait - silently. In the distance a Great Horned Owl hoots several times, and again silence. Still more distant is the bark of a red fox. Suddenly there is a faint rustling of the frosted leaves.

Figure 1



Figure 2



Figure 3



Photos by Paul H. Pohlman

National Collection
of Nature Photographs

NATURAL HISTORY BROCHURES NOW AVAILABLE

The centennial project of the OFNC, now Centennial Plus One, has recently been completed. Under the headings "BIRDS, BOTANY, GEOLOGY" this attractive brochure provides "some notes on the natural history of the Ottawa area for visitors coming to Canada's Capital". Maps are keyed to the notes which suggest routes and locations of particular interest to visiting naturalists.

The brochure was prepared by the Ottawa Field-Naturalists' Club and the Geological Survey of Canada for publication by the Ottawa Tourist and Convention Bureau. It is principally the work of George McGee, chairman of the OFNC Committee, and Dr. Alex MacLaren of the Geological Survey.

This excellent introduction to Ottawa's natural attractions is in fold-out form, 6 pages each side; the cover brightened by Brenda Haas' exquisite drawing of an attentive owl. It is offered free of charge by the Bureau through their Tourist Information Centres.

MORE CORNERS, TO ROUND OUT OUR PUBLICATION?

T & L was created a year ago as a naturalist's periodical designed for and written mainly by local members of the OFNC. One of its aims is to acquaint readers with the natural environment of Ottawa; to develop an appreciation of our local heritage of natural beauty and an understanding of local ecology.

Our "Explorer's Corners" direct the attention of readers to places in our area where people are free to wander - and discover for themselves the wealth of natural interest and enjoyment that is still available nearby. We ask you who visit similar places to share with us the appeal of your favorite spots. Write us an "Explorer's Corner"; if you need help in getting started, call the Editor (749-2400) or a member of the Editorial Committee for suggestions.

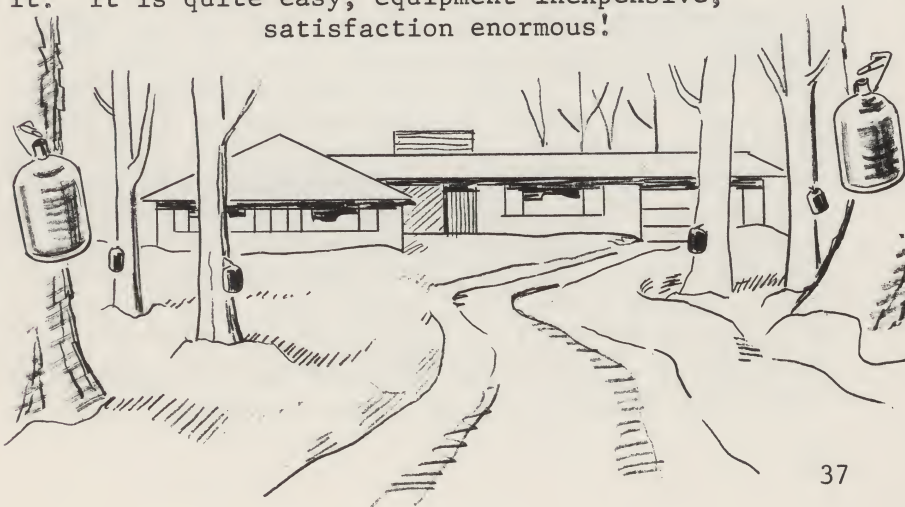
Of course we welcome other types of articles too. Please bear in mind that the emphasis in T & L is on our own area. ("My Trip to Texas" is not really what we're looking for.) The locale of a natural history observation need not be here if the observation applies equally well to Ottawa district phenomena. If in doubt, ask the Editor!

SWEET TIME in the SUBURB

Dana Duncan

Being pioneers at heart we have been thrilled by the pioneering challenges offered by our newly acquired property. You would be surprised how much hard pioneering work you can do on an average suburban lot. Although you cannot exactly "live off the land" you can have a lot of fun with your mini-farm, recreating sufferings and disasters of the early settlers. If you happen to have a few maple trees in your backyard then you can start your own maple syrup operation. You do not need many trees. Even two or three maples could provide you with enough syrup for your family, with a few jars left over to pass among friends, remarking proudly "and it is all homemade!" Homemade syrup is often of higher quality than the commercially made product, which we frequently find to be too dark and to have a burnt taste.

So if you have enough pioneering spirit left in you, why not make maple syrup production your spring project? This would also be a truly Canadian venture because, although there are perhaps as many as a hundred varieties of maples in the world, the sugar maple is found only in North America. Now is the time (end of March, beginning of April): go examine your maples and start planning maple syrup production. Your own and the neighbourhood children will be thrilled with it. It is quite easy, equipment inexpensive, satisfaction enormous!



As a "homemade" operation, I divide it into three stages: sap gathering, sap evaporation, and bottling or canning of syrup.

SAP GATHERING: All you need are metal spouts which you can get in any hardware store, and containers to catch the sap. Of course best containers would be aluminum buckets made especially for that purpose, but they are expensive and we found ordinary large-size bottles, either glass or plastic, quite satisfactory. We used one-gallon wine bottles. These come with handles which you can hang directly onto the spouts. Also, the wine bottles are made of dark glass, which gives sap some protection from sunlight. If you do not drink that much wine, ordinary large-size milk bottles will do. You tap only healthy sound maples which are at least 8 inches in diameter. Tapping means simply drilling $\frac{1}{2}$ " diameter hole in the tree (about 3 feet above the ground) to a depth of $1\frac{1}{2}$ " to 2". One tapping per tree is sufficient but a 15" diameter tree can stand two, in which case, however, you cannot expect double amount of sap. Once you have drilled the hole, clean it with a piece of wire, set in the spout, hammer it lightly, hang your bucket or bottle on it, and now you are ready to watch the sap fill your containers. This at first may be slow. Flow of sap depends on fluctuations of day-night temperatures. No doubt you have heard "frosty night (20°-26°F) and warm day (45°-50°F) fills the bucket". However, if you hung out milk bottles, they may be not only full but they may overflow, so during good days keep an eye on your containers. You may be ready for the next step.

SAP EVAPORATION: This is simply boiling your sap furiously till it reaches proper density (218°F. on candy thermometer). Your pot must of course be kept uncovered. Sap should be strained before evaporation and there again, you can buy felt filters (quite expensive) but several thicknesses of cheesecloth will do just as well. Sap could be evaporated on your own kitchen stove but if you happen to have a backyard barbecue it would certainly be more in granddad's style. You do not have to hover over your boiling pot of sap as it will take an awfully long time to come to the stage of syrup. (The ratio of sap to syrup is 40 to 1). But towards the end, better watch it closely

or I promise you the greatest mess you have ever seen. Burnt syrup "happens" in seconds and will fill your kitchen with dreadfully smelling smoke and will leave your pot coated with a black mass. If that happens, do not try to scrape it off - you cannot. Just leave it to dry then peel it off gradually. I am still "peeling off" one of my last year's burnt pots and it is almost clean by now. So don't despair, it will come off - eventually. But I am sure you did not burn your pot and now you have your kitchen filled with heavenly maple aroma and there is a little bit of syrup at the bottom of your pot. I suspect that at this point you will be disappointed by the small amount of it. You shouldn't be - remember, the ratio is 40 to 1! Now you have reached the last stage of maple syrup production: syrup bottling.

SYRUP PRESERVING is simple but if you do not do it properly, in a few weeks' time you may find it mouldy. Once it becomes mouldy, syrup is spoiled, because the mouldy smell will stay with it no matter what you do. When our syrup went bad (in the early days of our enterprise!) we put it out beside our garbage cans. Raccoons loved it - like bears, they like sweets. There are several methods of preserving syrup. For home use we find putting it in sterilized bottles to be the most simple and quite adequate. Our syrup keeps that way till next season. You simply pour hot syrup into hot, sterilized bottles or jars and seal as you would the preserves.

So now, at little expense and with very little work, you can enjoy the best maple syrup you have ever tasted. And if that seems a bit of an exaggeration, it certainly is - but all those who watch birds or go fishing will understand what I mean.

P.S. If you are still interested in maple syrup production you can get more detailed and technical information by phoning Dept. of Agriculture and asking for Bulletin No. 169.

A SPRING EVENING ON CARP "MOUNTAIN"

V. E. F. Solman

An outlier of Precambrian rock on the south side of the Ottawa River northwest of the town of Carp is known locally as Carp "Mountain".

The map indicates the location of the Murphy side-road and March Township Concession 1 road (Marchurst Road). The intersection of those roads is a good point from which to start a visit to the eastern part of Carp Mountain. The Murphy side-road, whose north end leads to Constance Lake, has during the past 22 years been at times passable by auto, on foot, or not at all, depending on the time of year, the state of repair of bridges and culverts, and the extent of beaver activity in the area. The beaver activity is related to the intensity of trapping.

Depending on beaver activity, black ducks and blue-winged teal may be found on water areas along or on the road. Snipe "winnow" overhead. But the chief attraction in spring is the woodcock. Male woodcock have "sung" over Carp Mountain for at least the past 30 years. The performance begins when the light intensity falls below 2 foot-candles. That occurs about 7:00 p.m. EST on April 15 and is later each successive evening. By May 15 the show begins about 7:55 p.m. EST. The male bird utters a buzzing call on the ground (called a "peent" by several authors) then flies spirally upward to 200-250 feet with a whirring noise caused by wind passing through the feathers. At the top of the flight it utters a number of liquid notes of a simple song, then rapidly descends to the ground to repeat the performance. Meanwhile the female, well out of sight, incubates the eggs.

Toward the end of the woodcock spring performance period, early in May, the whip-poor-wills take over.



In a typical May twilight as many as a dozen have been encountered along the road in a single evening. Flocks of Canada Geese fly low overhead and may land in the beaver ponds. Frogs are common and noisy in the twilight. Wetland plants occur in season.

A fire on the Mountain in the 1950's altered the ecology by burning off some of the forest cover. To get fire-fighting equipment into the area the road was rebuilt and for a few years could be used by autos. The road has now fallen into disrepair, and peace has returned to the area.

As ecological changes occur the interest of the area changes. For the period I have known it, I have much enjoyed those spring evenings spent walking the road across Carp Mountain.

We reprint here one of the most popular items from Volume One of TRAIL & LANDSCAPE, for new members who may have missed the first number of our publication. Some readers we know used

the original chart to check off the dates on which they first saw each species beside the published dates. Perhaps readers would like to play the game again this spring. ...A.H.

AVERAGE ARRIVAL DATES FOR SOME SPRING MIGRANTS AT OTTAWA

FEBRUARY

23 Horned Lark

23 Purple Finch

MARCH

4 Common Crow

18 Red-winged Blackbird

24 Hooded Merganser

25 Song Sparrow

26 American Robin

26 Brown-headed Cowbird

27 Herring Gull

28 Common Grackle

29 Killdeer

29 Eastern Meadowlark

APRIL

1 Scaup

2 Pied-billed Grebe

3 Mourning Dove

5 Canada Goose

5 Slate-colored Junco

6 Great Blue Heron

6 Bufflehead

6 Eastern Phoebe

7 Wood Duck

7 American Woodcock

8 Tree Swallow

9 Marsh Hawk

10 Ring-necked Duck

10 Belted Kingfisher

10 Rusty Blackbird

12 Golden-crowned Kinglet

14 Pintail

14 Yellow-shafted Flicker

15 Common Snipe

16 American Widgeon

16 Vesper Sparrow

17 Yellow-bellied Sapsucker

17 Loggerhead Shrike

18 Eastern Bluebird

18 Savannah Sparrow

18 Fox Sparrow

19 Blue-winged Teal

20 Common Loon

20 Green-winged Teal

20 Broad-winged Hawk

21 Hermit Thrush

22 Shoveler

22 Osprey

23 Barn Swallow

23 Purple Martin

23 Ruby-crowned Kinglet

24 American Bittern

24 Winter Wren

25 Sora

25 Field Sparrow

25 White-throated Sparrow

26 Chipping Sparrow

26 Swamp Sparrow

27 Greater Yellowlegs

29 Rough-winged Swallow

29 Brown Thrasher

29 Myrtle Warbler

30 Lesser Yellowlegs

MAY

1 Bank Swallow

2 Cliff Swallow

3 House Wren

4 Upland Plover

4 Whip-poor-will

5 Chimney Swift

5 Palm Warbler

6 Spotted Sandpiper

6 Nashville Warbler

6 Yellow Warbler

6 Northern Waterthrush

6 Rufous-sided Towhee

7 Solitary Vireo

7 Black-and-White Warbler

8 Common Gallinule

8 Eastern Kingbird

8 Black-throated Green Warbler

9 Cape May Warbler

10 Green Heron

10 Virginia Rail

10 Veery

10 Warbling Vireo

10 Black-throated Blue Warbler

10 Baltimore Oriole

10 White-crowned Sparrow

11 Great Crested Flycatcher

11 Least Flycatcher

12 Wood Thrush

12 Parula Warbler

12 Blackburnian Warbler

13 Catbird

13 Ovenbird

13 American Redstart

13 Rose-breasted Grosbeak

14 Chestnut-sided Warbler

14 Yellowthroat

14 Bobolink

15 Ruby-throated Hummingbird

15 Magnolia Warbler

16 Dunlin

16 Swainson's Thrush

17 Semipalmated Plover

17 Long-billed Marsh Wren

17 Red-eyed Vireo

17 Tennessee Warbler

17 Bay-breasted Warbler

18 Scarlet Tanager

19 Least Sandpiper

19 Wilson's Warbler

20 Common Nighthawk

20 Canada Warbler

21 Black-billed Cuckoo

22 Eastern Wood Pewee

24 Blackpoll Warbler

25 Least Bittern

29 Traill's Flycatcher

The chart above shows average arrival dates of our more common spring migrants. The dates were taken primarily from our own records covering approximately the last ten years, and are the average of the dates on which we first saw the bird for the year. I also used some data of Hue MacKenzie's, for which I thank him, and a list published many years ago by Hoyes Lloyd (Can. Field-Nat. 58 143; 1944). The very extensive

records of R.M. Saunders and J.L. Baillie for the Toronto area were referred to as well, as a check on my dates. Of course the list must be regarded as preliminary, since it is based on relatively little data. There is much more available around the city in the files of some of our more senior members and if someone were to undertake the job of processing it I feel sure they would be glad to see it being made available to others. ...G.R. Hanes

LETTERS

ON

Editor, T & L,

The report in TRAIL & LANDSCAPE, VOL. 2 No. 1, of a stand of Hackberry at Britannia was read with interest as confirmation of evident persistence of that reported in Fletcher's Flora Ottawaensis about 1880, when it was at "Britannia on the Ottawa".

Known occurrences of Hackberry in the Ottawa District were brought together in Can. Field-Nat.. Vol 56 page 130 (1942); and in Vol 61 page 141 (1947), "Hackberry In and Adjacent to the Province of Quebec". Many of these stations have been lost through urban expansion. One of these in Tunney's Pasture was where the Bureau of Statistics Building now stands. Others on St. Helen's Island, Montreal, would hardly have survived Expo '67. One tree along the road past Fairy Lake, near Hull, was cut down, with coppice remaining. A root cutting was carried home on my bicycle, was planted, and now overtops the two-storey house. Obviously it should not be cited in the proposed survey as one of the Ottawa native specimens.

Herbert Groh
472 Highcroft Ave.
Ottawa 3

Editor, T & L,

Jeanne White ("Outdoor Natural Science School") brings out the importance of maintaining natural areas as educational elements of the future. It must occur to those who speculate on man's future in this world that, if these 200-acre sites become the only areas to remain in their natural state, then the ecology of the entire area in concern would be altered considerably. This would indirectly change the natural elements of those rather small 200-acre lots. It seems apparent that although these outdoor school reserves are a step

hackberry, housing, and...

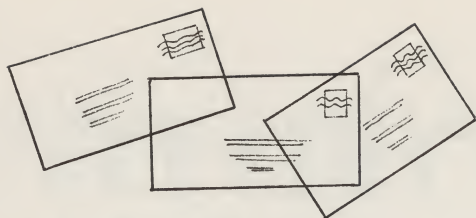
in the right direction, there must be additional and more far-reaching steps taken to preserve Nature as well as man himself. Man and the nature of his planet are inseparably interdependent. Regardless of the scientific advances man makes, he will always be dependent upon the plant-animal bond; where plants take in man's expired waste, carbon dioxide, and yield oxygen, while man takes in oxygen expired from plants and yields carbon dioxide. This basic law of earth science must be respected.

The above facts seem logical and usually receive little argument. Yet how much thought and concern is ever given to the construction of large warehouses and factories, or even residences, that completely negate the site and doom acres of previously biologically and aesthetically interesting fields? This is done in the name of progress. It is progress up to a point, but once that turning point is reached, where man upsets nature's balance, serious consequences may result. It seems to me that these consequences are beginning to appear with more and more frequency....

I feel time is growing ever shorter as we now have reached this turning point. The pathway to man's survival will require new approaches to our land use patterns and our construction techniques. These could result in a new and better life. Nature could, if man so wished, be preserved at the very doorstep of his dwelling. In a future world, such as is possible, children would not require a "zoo" for nature.... If we are to walk this pathway, we must encourage fresh approaches to the design of working and dwelling units....

Statistically one can predict the demise of man and his world if present population and construction trends continue. Man is not relegated to accepting these statistics. He has the ability to shape the future of his life on this planet. Let's begin now with fresh new motives!

Wayne Scott, Architect,
Landscape Architect
10th at Bayview
Constance Bay, Ontario



... hunters!

Editor, T & L,

It had rained lightly that morning, and the rays of the sun filtered slowly through a mist that engulfed the bay. The waves flowed gently, washing slowly upon the piers that projected from the shore. Several months passed since I was last at Presqu'île Provincial Park, and along the narrow channel...the once emerald grasses and rushes had turned a withered brown....These were the final days before the onslaught of winter.

Then without warning, a thundering volley of shot-guns resounded in the marsh and on the low wooded island adjacent to the channel. The shots had been fired by hunters who spotted a pair of red-breasted mergansers.... One of the birds was killed by having its wing broken by the blast, and its head blown off by the hunter after he realized it was only a merganser. Is this sportsmanship?

A flock of dunlins feeding along a windswept sand-bar was disturbed by the sharp reports ...and flew along the sandy shoreline into the jaws of death. A hunter... spotted the flock and fired at near point-blank range into their midst, felling three of the terrified birds. Where was the warden at this time?

Throughout the day I came across a profusion of bird carcasses, the majority being mergansers, golden-eye, scoters and gulls, along with the singular casualties, a white-rumped sandpiper and a mallard. These were some of the dead and dying birds on the hunters' list....

Hunters must learn the true meaning of life. They seem to know little except that it can be taken away at the pull of a trigger. If a child does wrong, his parents would correct him, but whose responsibility is it to discipline lawless hunters? Parks like Presqu'île are supposedly game preserves, but during the hunting season they could more properly be called morgues. Such hunting certainly contradicts every principle that a park stands for.

Hunting in provincial parks should be permitted only to those persons with permits, showing that they are qualified to shoot park game, and only if the population of a species of animal becomes detrimental to the environment of the park.

Editor's Note: We love your letters
but PLEASE be as concise as possible
so that we can accommodate all of you!

I am not wholly dogmatic about hunting, but I feel that more restraint against the outright slaughter of our government-protected birds must be implemented. More wardens should be placed in all our provincial parks to cut down on poaching and on illegal hunting such as occurs at Presqu'île. This kind of hunting is disgraceful.

If we do not act in more ways to protect our wildlife, there may be a greatly diminished population of wildlife in the not too distant future.

Brian Morin
306 First Ave.
Ottawa 1

Editor, T & L,

In recent articles in T & L, I detected a disparaging tone where reference was made to hunters. I would like to point out that there are many classes of hunters, from those who kill indiscriminately from a feeling of power, to those who hunt within the limits of the law, and with full knowledge of conservation and what it means.

New legislation is not always the answer where destruction is caused by lack of education. How many people began studying nature by collecting birds' eggs; or by collecting rare wildflowers...?

I suggest that much would be gained if field-naturalist clubs made a greater attempt to educate hunters. Prior to hunting seasons, hunters generally will read avidly anything pertaining to their sport. It should not be too difficult to have information passed to them as they obtain their licences to hunt.

Norm Buck
2501 Falcon Ave.
Ottawa 8



LISTEN TO THE PLANTS GROW !

Anne Hanes

Our phone rang one evening in late April last year, and my husband picked up the receiver. "Hello? Yes, Paul... No, have you?.... I see. We'll go out and listen. Goodnight." "That was Paul" he said as he hung up. Paul is our neighbour - I'll call him Paul to protect his identity, since his real name is Peter. "Paul says you can hear the plants growing."

This idea was a new one to us, but Paul is a plant physiologist, and one doesn't argue with a plant physiologist about such things, at least not before investigating. We picked up flashlights and stepped outside.

It was a mild, calm evening. Nothing stirred - so we thought at first. We stood at the edge of a wooded area where the ground was covered with dead leaves, just where they had fallen the autumn before. As we listened intently, a faint, almost continuous rustling sound could be heard throughout the area.

"The leaves are just altering their shape due to changes in humidity as the temperature drops", my physicist husband guessed. In the beam of our light, a slight movement here and there directed our attention to the fact that some of the leaves were rising slowly, tipping up at one end, only to drop back in place rather more quickly. "How about moles, tunnelling close to the surface?" was my counter-guess. Somehow we could not bring ourselves to believe in the Plants-Growing theory.

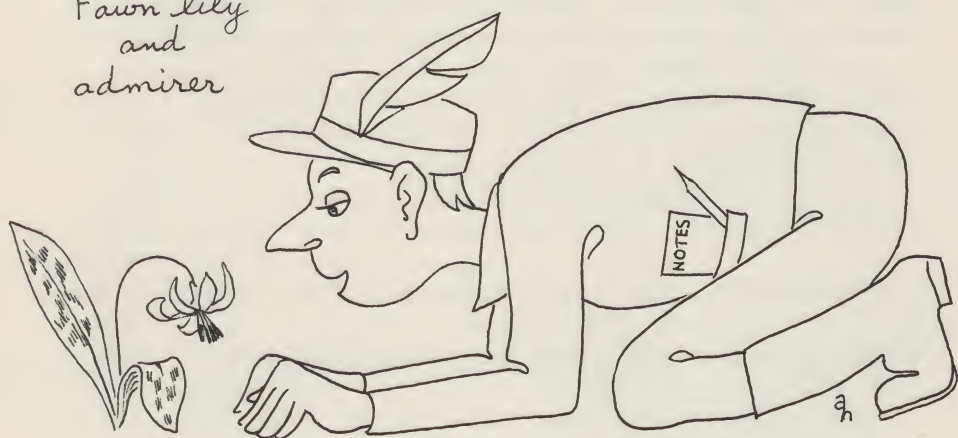
Next morning in the bright sunshine, I stood in a rich bit of bottomland near home, watching the ground. The phenomenon of moving leaves was still operating.

As I watched a leaf begin to move, some twenty feet away, I stepped cautiously closer, but the action stopped abruptly whenever I moved. Finally, by standing stock-still, I was able to catch a glimpse of the cause of it all - a fat pink earthworm.

One end of the worm neatly and firmly hooked itself over the leaf and withdrew into the soil below causing the opposite end of the leaf to stand up. If the worm relaxed its hold, the leaf fell back nearly to the original position, but by taking another hold and giving another pull, the worm eventually drew its leaf completely beneath the surface. Here the leaves become worm-food and leaf-mold, and help to provide the conditions of growth enjoyed by such plants as the fawn lilies which appear in such spectacular array in this area a few weeks later. (Fawn lilies are trout lilies - both names allude to the attractive mottling of the leaves - or if you like, adder's-tongues. They are still called, by some ignorant die-hards, "dogtooth violets", a name which I find both ugly and inappropriate for these charming yellow lilies.)

I announced my findings to Paul later that day. "I'm very glad to know what it really was that we heard" he said. "Actually, though, it was my wife who thought that it might be the plants growing!"

*Fawn lily
and
admirer*



THE TOADS, TREEFROGS AND FROGS OF THE OTTAWA DISTRICT

Francis R. Cook
National Museum of Canada

This is the second of a series of articles designed to summarize the identifying characteristics of the amphibians and reptiles in the Ottawa District. The first appeared in the Jan.-Feb. issue of TRAIL & LANDSCAPE.

Class ANURA (or SALIENTIA): the anurans: frogs, toads, etc.

These are the tailless amphibians, a group modified by selection for long hind legs and shortened backbones. Although some tropical groups lay their eggs on land and others may transport their tadpoles on their backs, those in the Ottawa District all follow the "typical" frog life history. They lay their eggs in the water and these hatch as tadpoles. The tadpole has gills and an elongated vegetarian intestine. It initially lacks legs. At completion of metamorphosis to a frog, the tadpole has lost its gills and developed lungs, its intestine has shortened to the carnivorous type, and it has grown legs.

There are 1,800 species of anurans in the world, of which 22 occur in Canada. Ten of the 12 species recorded in Ontario have been found in the Ottawa District.

Each of our species has a distinctive breeding call given by the males. Breeding males may also be recognized by various secondary sexual characteristics, dark or yellow throats, thumb pads, etc. which are noted under each species. As tadpole identification is difficult in the field, a key to Ottawa District tadpoles may be presented at a later date.

In the following descriptions, size refers to the length from the tip of the snout to the vent.

Family Bufonidae, the "true" toads and their allies

AMERICAN TOAD, Bufo americanus americanus

The squat, muddy brown or grayish, greenish, yellowish- or reddish-brown toad is readily identified by the numerous warts which cover its back and sides. Two large glands, the parotoid glands, are conspicuous on the shoulders, and characteristic bony ridges,



American Toad



Western Chorus Frog



Spring Peeper



Eastern Gray Treefrog



Pickerel Frog



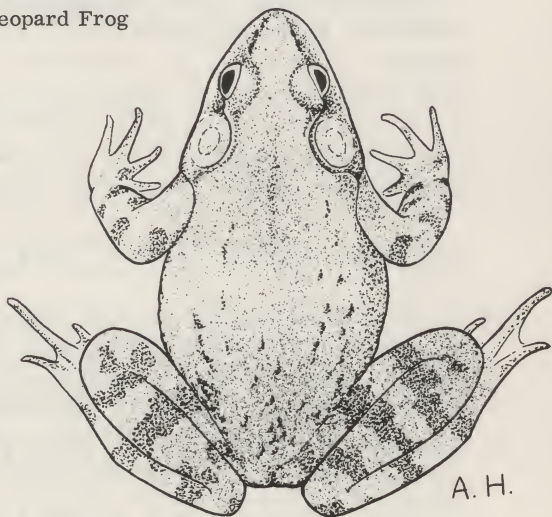
Leopard Frog



Wood Frog



Mink Frog



A. H.



Green Frog

Bullfrog

cranial crests, are present on the head between the eyes. In the breeding season the males have dark throats and cornified "pads" on their inner front toes. The toads' call is a long trill; a single trill may last as long as 33 seconds. They may breed from late April to June in a wide variety of shallow water habitats but the peak is usually in May during heavy warm rains. Toads' eggs are laid in two long simultaneously produced strings, each one egg wide; treefrogs and pond frogs lay their eggs in compact or loose masses. Toads are abundant throughout the district, and they often live in backyards and gardens after the breeding season.

Family Hylidae, the treefrogs

WESTERN CHORUS FROG, Pseudacris triseriata triseriata

This is a little frog, rarely over an inch long; it is brown or grayish, usually with five dark longitudinal stripes. Occasionally these stripes may be broken to form dashes and, more rarely, spots. The lateral stripe is distinctive and runs from the nostril along the shoulder and down toward the lower sides. The males have dark or yellowish throats in the breeding season. The toe discs are minute and the Chorus Frog rarely climbs above tall grass. It is one of the first frogs to be heard, calling from roadside ditches and temporary ponds in fields with the first warm weather in early April or, in exceptional years, late March. The call is astonishingly loud for such a tiny species and has a rasping quality perhaps best imitated by drawing a thumbnail over the teeth of a comb. It is common over most of the Ottawa valley but absent in the higher and heavily wooded portions of the Gatineau.

NORTHERN SPRING PEEPER, Hyla crucifer crucifer

This agile little frog is only slightly larger than the Chorus Frog, rarely reaching $1\frac{1}{4}$ inches. It is light brown with a prominent mark on the back, often X-shaped (for which it was named). It has prominent toe-discs. Its shrill peep-peep-peep mating call is heard throughout the district from temporary ponds in or near woods in the spring. Occasional individuals begin calling soon after the first Chorus Frog is heard, but the large choruses come with slightly warmer

weather in late April or May. A few Peepers may even still call in late June or early July. Breeding males have dark or yellow throats. The Peeper climbs readily, but rarely higher than low bushes. It is abundant.

EASTERN GRAY TREEFROG, Hyla versicolor

Our largest treefrog, this species may attain $2\frac{1}{2}$ inches, but average adults are smaller. The ground color is variable, and one specimen can change through the spectrum known for the species. It may be gray, brown or green. Usually an irregular dark marking is present on the back. It is orange on the posterior sides of the body and on the inner sides of the hind legs, surfaces hidden when the leg is folded in a normal sitting position. Large toe discs are present. Between the eye and the edge of the upper jaw is a small light yellowish square which is usually distinct in all color transformations. Breeding does not occur until the weather has warmed considerably - from mid to late May on into June. Breeding males have dark throats; the female's throat is white, sometimes with a few dark spots. The call is a short, loud, resonant trill. They breed in temporary ponds usually where there are flooded bushes. Outside of the breeding season they spend most of their time in bushes or trees. On a lichen covered trunk their color may so nearly match the background that the frogs are almost impossible to detect. They are abundant over most of the Ottawa District.

Family Ranidae, "true" or "pond" frogs

WOOD FROG, Rana sylvatica

This is the smallest of the Ranidae in our area, and reaches a maximum size of about $2\frac{1}{2}$ inches. A black or dark brown "mask" from nostril to back of the tympanum, bordered below by a white line along the upper edge of the jaw, distinguishes this species. The ground color is generally brown but may also be reddish, pale gray or almost black (the latter particularly in breeding males in cold water). Dorsolateral folds (raised ridges of skin) are prominent along the back. A variable number of dark, almost black, spots may be present on the back and sides. Rarely, there is a light

mid-dorsal line. The underside is white with dark or dusky flecks. The base of the thumb is dark and swollen in breeding males. Vocal sacs are lateral. Breeding is generally in temporary woodland ponds and ditches. It is usually the first frog to call in the spring, starting with the Chorus Frogs as soon as the snow has melted. It may even begin calling when the shaded part of its breeding pond still retains some ice. The call is a "quack", often repeated rapidly several times. It occurs throughout the district and prefers damp woodland areas.

LEOPARD FROG, Rana pipiens

Adults may reach 4-1/8 inches. They are green or brown above with circular or elongated oblong dark spots which always have narrow but distinct light borders. A light line is present along the upper jaw. The dorsolateral folds are conspicuous. The underside is milky white and unmarked. The breeding male has enlarged and darkened thumb pads. The vocal sacs are lateral. The Leopard Frog breeds in temporary and permanent ponds, in marshes and shallow lake margins. Calling may begin in April, slightly later usually than the Wood Frog. Peak chorus occurs in May. The call is a long groaning snore, usually followed by several rapid low grunts. After breeding it may range into fields and meadows some distance from the water. It is abundant throughout the district.

PICKEREL FROG, Rana palustris

This frog attains a maximum length of 3-1/8 inches. Like the Leopard Frog, it is spotted but the ground color is always brown (never green) and the spots are squarish or rectangular, never rounded. The surest field mark for adults is the presence of yellow or orange on the sides of the hind legs; this is absent in the young. It has a light line bordering the upper jaw. The dorsolateral folds are wide and conspicuous. The underside is white. Breeding males have dark thumb pads and lateral vocal sacs. This is the rarest frog in the Ottawa district, collected only on the east side of the city (Rockcliffe, "Dow's Swamp") and a few localities in the Gatineau. There are few recent records. It is said to breed in lake margins, possibly in stream

backwaters and ponds, but we have no breeding site records for Ottawa. It probably breeds here in May. Its call is described as a low-pitched snore. Pickerel Frogs inhabit margins of bogs, streams and lakes but also forage into meadows away from the water in summer.

MINK FROG, Rana septentrionalis

A distinctive frog but the most likely to cause confusion in identification. It is usually green on the head and shoulders, becoming brown on the back. The back is spotted with dark round spots, set in a boldly reticulated pattern of light brown or green on a brown background. The dorsolateral folds usually extend only part way down the back but may be practically absent or fairly prominent. The hind legs have irregular blotches. The underside is creamish. The best field mark is the pungent odor of a freshly caught individual, resembling that of a mink or rotten onions. Specimens soon lose this with handling and must be "nose-tested" immediately. No other Ottawa district frog has an odor. It attains a maximum length of 3 inches. Males have enlarged eardrums, yellow throats and thumb pads. The call has been described as cut-cut-cut-cut and is somewhat reminiscent of the Wood Frog. It breeds in late May and June. It is a year-round resident of quiet, lily-pad choked streams and bogs or lakes. It is locally abundant in scattered suitable locations in the valley and the Gatineau.

GREEN FROG, Rana clamitans melanota

This is the most variable frog in the Ottawa district and some of its variations may be mistaken for the Mink Frog by observers seeking that species. It is usually green or brown, but rarely, yellowish or almost black. Some individuals are irregularly spotted or reticulated. The hind legs have narrow bars rather than the blotches of the Mink Frog. The dorsolateral folds are usually well developed. The underside is white but there usually are some dark flecks or irregular mottlings on the underside of the hind legs and throat. The throat of breeding males is deep bright yellow and the thumb is swollen and darkened. The eardrum (tympanum) of mature males is conspicuously larger than the eye, in the female it is about equal

to the eye in diameter. It has no odor, and this is the best character for distinguishing it. It attains a larger maximum size than the Mink Frog; females may reach nearly 5 inches. This is a frog of ponds and shallow heavily vegetated areas of lakes and rivers. The breeding call is a distinctive banjo-like "chung". It breeds in May and June, and occasional males may be heard in early July. During the summer it may be found along the margins of a variety of water situations including streams. It is common throughout the Ottawa District.

BULLFROG, Rana catesbeiana

The giant frog of the Ottawa district, individuals of this species may exceed 6 inches in body length. It is generally green, but may, especially on the back, be brown. It is sometimes uniform but often has a mottled appearance and may appear somewhat warty. Its diagnostic feature is the lack of dorsolateral folds. A raised ridge runs around the posterior edge of the tympanum but does not extend on to the back. The young are speckled with dots of black, never large spots as in Mink or Green Frogs. The throat of the breeding male is yellow, in the female and immatures it is white. The tympanum in adult males is greater in diameter than the eye, about the same diameter as the eye in females and immatures. There may be some dusky mottling on the throat and on the white belly and underside of the hind legs. This species is very aquatic, and inhabits large permanent ponds, lakes and margins of rivers where there is little or no current. Its booming voice seems to call "jug-o-rum". Breeding occurs in June and July and the tadpoles may take two years to transform. Both adults and (especially) juveniles may wander up streams in the summer. It is generally the last species to emerge from hibernation and the last to breed. It is common in suitable localities throughout the Ottawa district and is widely taken for its large hind legs which are considered a gourmet's treat by some.

O F N C COMING EVENTS

Sat. 23 March BIRD OUTING, PRESQU'ILE PROVINCIAL PARK
Waterfowl in Migration. Because of the early start, an overnight stay at the WHITE HOUSE, Brighton, is recommended. Those interested should phone leaders Monty Brigham (728-0855) or Ron Pittaway (684-5719).

Meet: Entrance, Presqu'Ile Provincial Park
Time: 7:00 a.m.

Thurs. 28 March CANADIAN STUDY OF LARGE METEOR CRATERS
A lecture with slides outlining the Canadian program for studying craters in the earth's crust produced by the impact of large meteorites. Many of the known craters are in Canada; one is quite close to Kingston, Ont.

Speaker: Mr. Dence, Dominion Observatory
Place: Auditorium, National Museum
Time: 8:00 p.m.

March FIELD TRIP TO SEE GREAT HORNED OWLS
Date depends on nesting time. Watch John Bird (Journal) and Wilf Bell (Citizen) columns for place and time.
Leader: W. A. Holland (234-6705)

Sat. 13 April BIRD OUTING: MIGRATING DUCKS
Rideau River, Manotick to Smiths Falls. Bring lunch.
Leaders: Monty Brigham and Ron Pittaway
Meet: Health & Welfare Bldg.
Time: 7:00 a.m.

Fri. 26 April AMPHIBIANS IN SPRING
Flashlight, rubber boots will be useful. Dress warmly.
Leaders: Francis Cook and Gary Hanes
Meet: Health & Welfare Bldg.
Time: 7:30 p.m.

Sat. 27 April FIELD TRIP FOR SPRING BIRDS
Leaders: Monty Brigham and Ron Pittaway
Meet: Restaurant, Shirley's Bay
Time: 6:00 a.m.

Tues. 7 May ANNUAL OFNC SPRING DINNER
Dr. Don Smith, Carleton University, will speak on "Land and Wildlife in Uganda". Eastview Hotel, 200 Montreal Road, 7:00 p.m. Tickets \$3 each. Make reservations before 1 May with Miss Sadie Landon (235-1161) or Miss Anne Banning (235-8959).

